

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



1  
A984Pro  
C2

5

# A Conservation Plan

...for a developing area



USDA  
NATL AGRIC LIBRARY  
1998 JUN 17 P 2-31  
CURRENT SERIAL RECD  
SERIALS STAFF



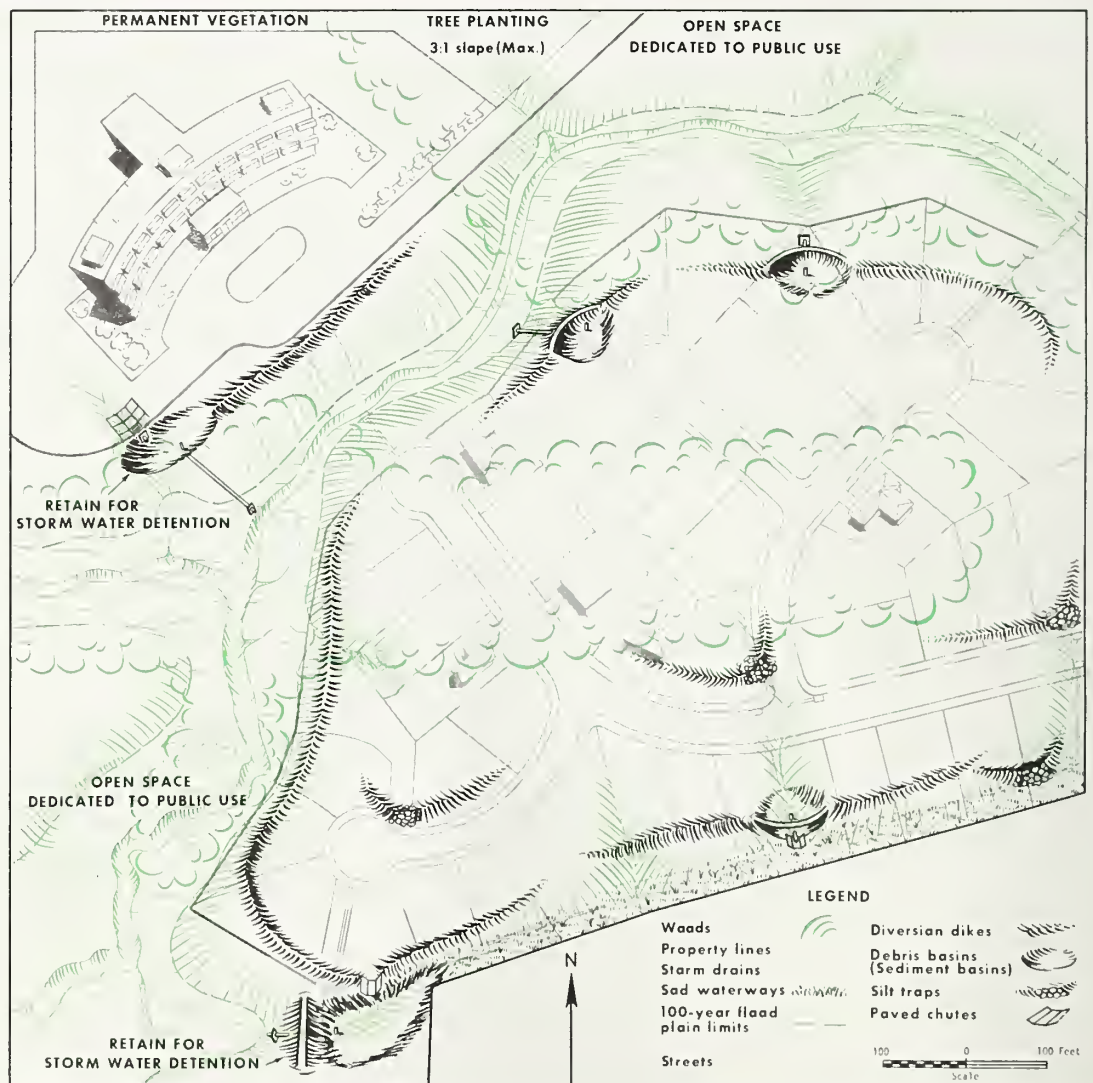
# A CONSERVATION PLAN ...for a developing area

Increasingly, farms, forests, and other open spaces are being converted to urban uses. Land disturbance associated with residential, industrial, and commercial developments and supporting activities (building streets, sewer lines, power transmission lines, airports) contributes to a serious nationwide problem of soil erosion and sediment damage. More than 25,000 tons of soil may be eroded from a square mile of developing area and find its way into

marshes, streams, ponds, rivers, lakes, and marine estuaries. Silted ponds, lakes, and reservoirs have less room to store storm water, and thus water supplies are damaged and flood hazards increased. Government and industry spend millions of dollars to remove sediment from water to be used in homes, hospitals, and factories. Sediment destroys spawning grounds for fish and is a health hazard because disease germs, pesticides, and other unwanted materials attached to it are transported from one community to another.

Throughout the Nation, a "quiet revolution" is underway. Many villages, towns, townships, cities, and counties are enacting ordinances or issuing rules and regulations designed to protect the public from unnecessary and destructive soil erosion and sedimentation. In many areas, conservation plans

## Planned land use and conservation treatment



must be prepared by developers and approved by conservation districts before land-disturbing permits are granted. Such conservation plans show, for instance, how a housing developer will use his land and control erosion and sedimentation during and after construction.

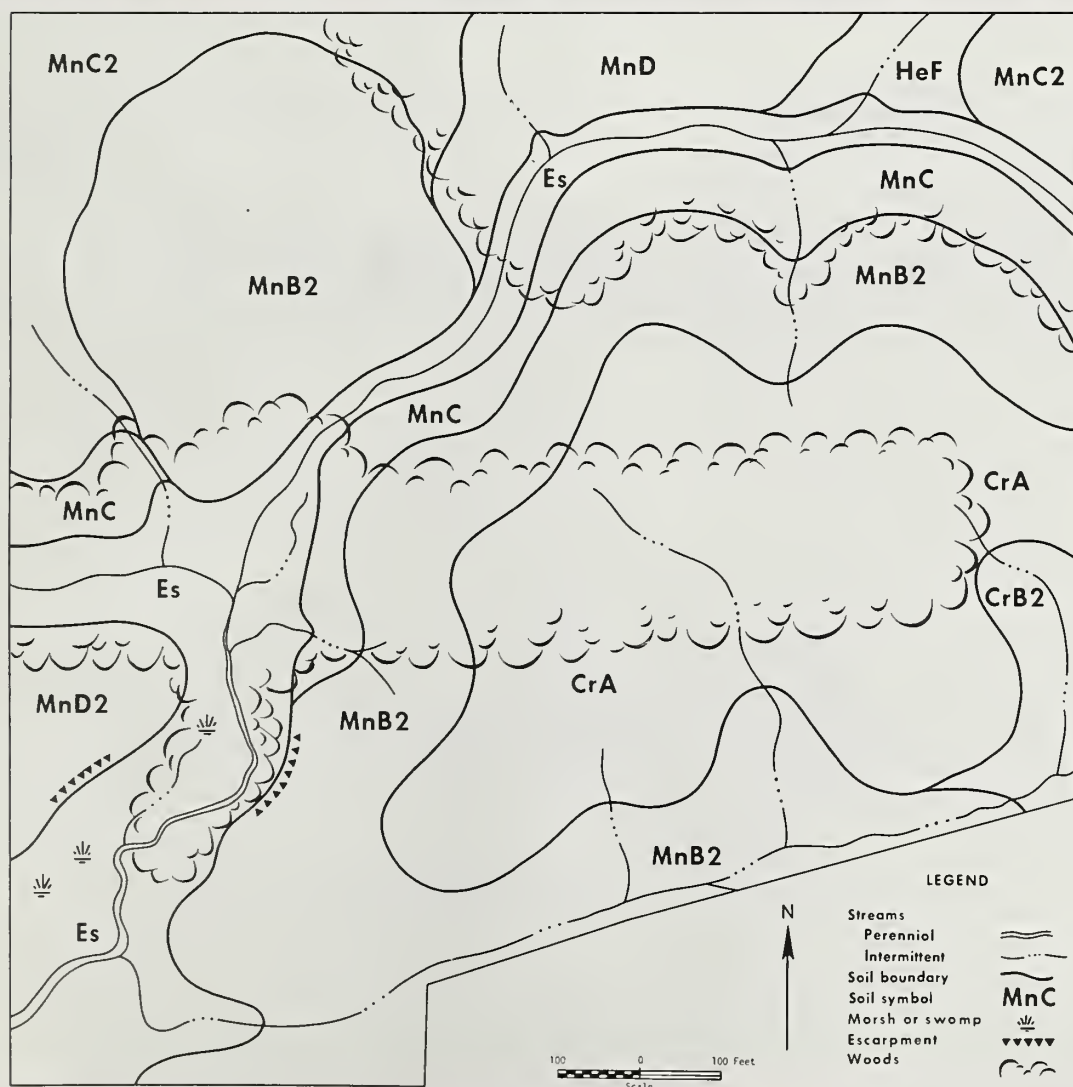
Soil surveys provide developers information on the location and extent of the different kinds of soil in an area and show the soil limitations for selected uses. Once the soil limitations are known, streets, homes, utilities, and other kinds of construction often can be planned on selected soils that are stable, dry, and generally free of problems. In some places soils with moderate or severe limitations must be used. Soil interpretations show the kinds of soil problems so that engineers and developers can investigate them in detail and plan and design struc-

tures to reduce or overcome them. In this way, decisions can be made early about selecting areas for specific uses and maintenance costs can be held to a minimum. Constructing homes and other buildings on desirable soils increases opportunities for landscaping with a variety of plants, both for beauty and to control erosion.

A conservation plan shows the steep land that is to be protected with vegetation. Waterways are preserved and protected, and recreation areas are located on suitable sites. Land subject to overflow from streams also is preserved and protected to curtail flooding and to provide additional open space for wildlife and recreation.

Equally important, a conservation plan shows the location of conservation measures, such as dikes, water diversions, terraces, dams, reservoirs, water

## Soil map







conduits, grassed waterways, and plantings of grass, trees, and shrubs. A plan accounts for the timing and sequence of installing conservation measures in order to provide for maximum control of erosion and sedimentation.

## The Plan

This example of a developer's conservation plan for a housing development provides for an attractive environment based on careful use of soil, water, and plant resources. The plan is based on interpretations of the soils in the area. A pictorial map is used here to show the developer's plan. More often, however, a plat map that shows topography, lot measurements, street widths, and other features is used.

Detailed designs of conservation measures, although not shown in this example, are a necessary part of conservation plans. Designs must comply with standards and specifications adopted by the governmental entity that has responsibility for review and approval.

Conservation plans for developing areas that have different climate, soils, and topography require different land use and conservation measures. For example, in some areas a high water table is as great a problem as erosion and sedimentation.

Conservation plans can be prepared by engineers, developers, building contractors, or other technically qualified resource planners. If needed, SCS technical assistance can be made available through the local soil conservation district.

## Legend and soil descriptions

Symbol	Soil	Brief description
CrA CrB2	Crosby silt loam, 0 to 2 percent slopes Crosby silt loam, 2 to 6 percent slopes, eroded	Light-colored to moderately dark colored, deep, somewhat poorly drained, slowly permeable soils on nearly level to gently sloping areas in uplands. Developed from firm glacial till.
Es	Eel silt loam	Moderately dark colored, deep, moderately well drained, moderately permeable soils on nearly level areas in bottom lands. Developed from friable alluvium.
HeF	Hennepin soils, 18 to 35 percent slopes	Light-colored, deep, well-drained, moderately permeable soils on steep slopes in uplands. Developed from firm glacial till.
MnB2 MnC MnC2 MnD MnD2	Miami silt loam, 2 to 6 percent slopes, eroded Miami silt loam, 6 to 12 percent slopes Miami silt loam, 6 to 12 percent slopes, eroded Miami silt loam, 12 to 18 percent slopes Miami silt loam, 12 to 18 percent slopes, eroded	Light-colored, deep, well-drained, moderately permeable soils on gentle slopes to moderately steep slopes in uplands. Developed from firm glacial till.

## Soil interpretations

Symbol	Soil	Erosion hazard	Dwellings—three stories or less		Septic tank absorption fields	Location of roads and streets	Parks or nature trails
			With basement	Without basement			
CrA	Crosby	Slight	Severe; wetness	Moderate; wetness	Severe; wetness	Moderate; wetness	Moderate; wetness
CrB2	Crosby	Moderate; sheet erosion	Severe; wetness	Moderate; wetness	Severe; wetness	Moderate; wetness	Moderate; wetness
Es	Eel	Moderate; streambank erosion	Severe; floods	Severe; floods	Severe; floods	Severe; floods	Moderate; floods
HeF	Hennepin	Severe; sheet and gully erosion	Severe; slope	Severe; slope	Severe; slope	Severe; slope	Severe; slope
MnB2	Miami	Moderate; sheet erosion	Slight	Slight	Slight	Slight	Slight
MnC, MnC2	Miami	Severe; sheet and gully erosion	Moderate; slope	Moderate; slope	Moderate; slope	Moderate; slope	Moderate; slope
MnD, MnD2	Miami	Severe; sheet and gully erosion	Severe; slope	Severe; slope	Severe; slope	Severe; slope	Severe; slope

Soil limitation classes—Soils rated as SLIGHT have few or no limitations for the use. Soils rated as MODERATE have limitations that reduce to some degree their desirability for the purpose being considered. They require some corrective measures. Soils rated as SEVERE have unfavorable soil properties or features that severely restrict their use and desirability for the purpose. A severe rating does not mean that the soil cannot be used for a specific purpose because many of the problems can be corrected.

## Land use

The land use pattern proposed by this developer contributes to control of erosion and sedimentation and to maintenance of the environmental and esthetic values of this area.

1. The flood plain and adjacent steep slopes are reserved for public use. Trails or other projects for recreation or environmental improvement may be developed by the local unit of government.
2. Public access lanes connect each street with the open space dedicated to public use.
3. Storm sewers carry street and lot runoff to stable outlets or water-detention reservoirs.
4. Street patterns conform to land contours and are designed for pedestrian safety and abatement of traffic noises.
5. Building lots are laid out to conform to the contours of the land in order to reduce land disturbance.
6. The area is platted so that a maximum number of lots share the wooded sectors.
7. Natural water courses are preserved and protected.

## Measures to control erosion and sedimentation

To control erosion and sedimentation in this area during and after construction, the developer agrees to:

1. Disturb only the areas needed for construction. At the present time, natural vegetation covers this area and there is little erosion. The streambed and streambanks are stable. The vegetation on the flood plain and adjacent slopes will contribute to the esthetic and environmental quality of the development.
2. Remove only those trees, shrubs, and grasses that must be removed for construction; protect the rest to preserve their esthetic and erosion-control values.
3. Stockpile topsoil and protect it with anchored straw mulch.
4. Install sediment basins and diversion dikes before disturbing the land that drains into them. Diversion dikes in the central part of the development may be constructed after streets are installed but before construction is started on the lots that drain into them.
5. Install streets, curbs, water mains, electric and telephone cables, storm drains, and sewers in advance of home construction.
6. Install erosion- and sediment-control practices as indicated in the plan and according to soil conservation district standards and specifications. The practices are to be maintained in effective working condition during construction and until the drainage area has been permanently stabilized.
7. Temporarily stabilize each segment of graded or otherwise disturbed land, including the sediment-control devices not otherwise stabilized, by seeding and mulching or by mulching alone. As construction is completed, permanently stabilize each segment with perennial vegetation and structural measures. Both temporary and permanent stabilization practices are to be installed according to soil conservation district standards and specifications.
8. "Loose-pile" material that is excavated for home construction purposes. Keep it "loose-piled" until it is used for foundation backfill or until the lot is ready for final grading and permanent vegetation.
9. Stabilize each lot within 4 months after work starts on home construction.
10. Backfill, compact, seed, and mulch trenches within 15 days after they are opened.
11. Level diversion dikes, sediment basins, and silt traps after areas that drain into them are stabilized. Establish permanent vegetation on these areas. Sediment basins that are to be retained for storm-water detention may be seeded to permanent vegetation soon after they are built.
12. Discharge water from outlet structures at nonerosive velocities.
13. Design and retain two debris basins as detention reservoirs so that peak runoff from the development area is no greater than that before the development was established.



## CERTIFICATION STATEMENTS

Conservation plans prepared in compliance with ordinances usually need certification statements similar to the following:

"I CERTIFY THAT THE PLAN OF DEVELOPMENT AND THE PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS, STANDARDS, AND SPECIFICATIONS OF THE WILLIAMS SOIL CONSERVATION DISTRICT."

\_\_\_\_\_  
Engineer for Developer

\_\_\_\_\_  
Date

"I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR SOIL EROSION AND SEDIMENT CONTROL."

\_\_\_\_\_  
Developer

\_\_\_\_\_  
Date

"TECHNICAL REVIEW MADE BY THE SOIL CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE, IN ACCORDANCE WITH MEMORANDUM OF UNDERSTANDING WITH THE WILLIAMS SOIL CONSERVATION DISTRICT."

\_\_\_\_\_  
(Name and title)  
Authorized Representative  
Soil Conservation Service

\_\_\_\_\_  
Date

"THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE WILLIAMS SOIL CONSERVATION DISTRICT."

APPROVED: \_\_\_\_\_  
Soil Conservation District

\_\_\_\_\_  
Date

ISSUED JANUARY 1973

